

## **WHAT IS CLAIMED IS:**

1. A method of providing multiple images for transmission across an analog interface, comprising :

receiving at least one digital image data input stream, said digital image data input stream containing digital image information;

creating at least two digital image data streams from said at least one digital data input stream, each of said at least two digital image data streams comprising at least a portion of said digital image information;

merging said at least two digital image data streams into a common digital image data output stream;

converting said common digital image data output stream into an analog image output stream; and

providing said analog output image stream for transmission across said analog interface.

2. The method of claim 1, wherein one of said at least two digital image data streams comprises a first image having a first resolution; wherein another of said at least two digital image data streams comprises a second image having a second resolution; and wherein at least one of:

said first and second resolutions are different, or

said first image comprises a different portion of said digital image data input stream than said second image, or

a combination thereof.

3. The method of claim 2, wherein said at least one digital image data input stream comprises a digital video signal received from a digital video source; and wherein said method further comprises providing said analog output image stream as an analog video signal for transmission across said analog interface.

4. The method of claim 3, further comprising receiving said analog video signal from across said analog interface, said analog video signal comprising said first and second images.

5. The method of claim 4, further comprising displaying said first and second images of said analog video signal on an analog display device.

6. The method of claim 4, further comprising:

creating a third digital image data stream from said at least one digital data input stream, said third digital image data stream comprising at least a portion of said digital image information and having a third resolution;

converting said third digital image data stream into a second analog image output stream; and

providing said second analog output image stream as a second analog video signal for transmission across a second analog interface;

receiving said second analog video signal from across said second analog interface, said analog video signal comprising said third image; and

displaying said third image of said second analog video signal on a second analog display device;

wherein at least one of:

said third resolution is different from said first and second resolutions, or

said third image comprises a different portion of said digital image data, or a combination thereof.

7. The method of claim 6, wherein said creating further comprises extracting a window area from said original image information and scaling said extracted window area to create said third image as a zoomed image; and further comprising controlling a value of said scaling in real time based at least in part on a command signal, or controlling the position of said extracted window area relative to said original image in real time based at least in part on a command signal, or a combination thereof.

8. The method of claim 4, wherein said first and second resolutions are different and wherein said method further comprises displaying said first image at said first resolution while simultaneously displaying said second image at said second resolution.

9. The method of claim 4, wherein said creating further comprises using scaling to create said first image as a zoomed image prior to said step of merging; wherein said second image is not a zoomed image; and wherein said step of displaying comprises displaying said zoomed first image on an analog display device while simultaneously displaying said second unzoomed image on said same analog display device.

10. The method of claim 4, further comprising controlling a value of said scaling in real time based at least in part on a command signal.

11. The method of claim 4, wherein said digital image information comprises an original image; wherein said step of creating said first image comprises extracting a window area from said original image information to create said first image prior to said step of merging; and wherein said step of displaying comprises displaying said first image on an analog display device while simultaneously displaying said second image on said same analog display device.

12. The method of claim 4, further comprising controlling the position of said extracted window area relative to said original image in real time based at least in part on a command signal.

13. The method of claim 4, wherein said digital image information comprises an original image; wherein said step of creating said first image comprises extracting a window area from said original image information and then upscaling said window area to create said first image as a zoomed image prior to said step of merging; and wherein said step of creating further comprises downscaling said original image information to create said second image; and wherein said step of displaying comprises displaying said zoomed first image on an analog display device while simultaneously displaying said downscaled second image on said same analog display device, said second image being downscaled such that it does not occupy the full analog display space of said analog display device, and said first image being displayed on at least a portion of said analog display device that is not occupied by said second image.

14. The method of claim 13, wherein said original image information comprises a high resolution digital image.

15. The method of claim 13, further comprising at least one of controlling the position of said extracted window area relative to said original image in real time based at least in part on a command signal; controlling a value of said upscaling of said extracted window area in real time based at least in part on a command signal; or a combination thereof.

16. The method of claim 4, wherein said at least two digital image data streams comprises at least four digital image data streams;

wherein a first one of said at least four digital image data streams comprises a first image having a first resolution; wherein a second one of said at least two digital image data streams comprises a second image having a second resolution;

wherein a third one of said at least four digital image data streams comprises a third image having a third resolution; and wherein a fourth one of said at least four digital image data streams comprises a third image having a third resolution;

wherein each of said at least four images either has a resolution that is different from each of said other at least four images, or comprises a different portion of said digital image data input stream than each of said other of said at least four images, or a combination thereof;

wherein said analog video signal comprises said first, second, third and fourth images;

wherein said digital image information comprises an original high resolution image, and wherein said step of creating said first, second and third images comprises extracting respective first, second and third window

areas from said original image and then upscaling said first, second and third window areas to create said first, second and third images as zoomed images prior to said step of merging;

wherein said step of creating further comprises downscaling said original image information to create said fourth image; and

and wherein said step of displaying comprises displaying said zoomed first, second, and third zoomed images on an analog display device while simultaneously displaying said downscaled fourth image on said same analog display device, said fourth image being downscaled such that it does not occupy the full analog display space of said analog display device, and said first, second and third images being displayed on at least a portion of said analog display device that is not occupied by said fourth image.

17. The method of claim 16, further comprising at least one of controlling the position of at least one of said first, second, or third extracted window areas relative to said original image in real time based at least in part on a command signal; controlling a value of said upscaling of at least one of said first, second or third extracted window areas in real time based at least in part on a command signal, or a combination thereof.

18. A method of providing multiple images for transmission across an analog interface, comprising:

receiving at least one digital image data input stream, said digital image data input stream containing digital image information;

creating at least two digital image data streams from said at least one digital data input stream, each of said at least two digital image data streams

comprising at least a portion of said digital image information, and wherein a first one of said at least two digital image data streams comprises a first image having a first resolution, and wherein a second one of said at least two digital image data streams comprises a second image having a second resolution;

converting a first one of said at least two digital image data streams into a first analog image output stream, and converting a second one of said at least two digital image data streams into a second analog image output stream;

communicating said first analog output image stream across a first analog interface, and communicating said second analog output image stream across a second analog interface;

receiving said first analog output image stream from across said first analog interface, said first analog output image stream comprising said first image;

receiving said second analog output image stream from across said second analog interface, said second analog output image stream comprising said second image;

displaying said first image of said first analog output image stream on a first analog display device; and

displaying said second image of said second analog output image stream on a second analog display device.

19. The method of claim 18, wherein said first and second resolutions are different, or wherein said first image comprises a different portion of said digital image data input stream than said second image, or a combination thereof.

20. The method of claim 18, wherein said at least one digital image data input stream comprises a digital video signal received from a digital video source; and wherein said method further comprises providing said first and second analog output image streams as first and second analog video signals for transmission across said respective first and second analog interfaces.

21. A method of processing digital image data, comprising:

providing said digital image data, said digital image data comprising a full image;

processing said digital image data in a first processing operation to create first processed image data comprising a first image;

processing said digital image data in a second processing operation to create second processed image data comprising a second image;

merging said first and second processed image data into a common merged data stream;

converting said merged data stream into a composite analog video stream containing said first and second images; and

providing said composite analog video stream for communication across an analog interface;

wherein at least one of:



said first processed image data has an image resolution that is different  
from an image resolution of said second processed image data, or

said first processed image data comprises a different portion of said digital  
image data than said second processed image data or

a combination thereof.

22. The method of claim 21, further comprising controlling at least one of said first or second processing operations in real time based at least in part on a command signal.

23. The method of claim 21, further comprising:

receiving said composite analog video stream containing said first and second  
images from across said interface; and

displaying said first and second images contained in said composite analog video  
stream on a common analog display device.

24. The method of claim 23, wherein said first processing operation comprises a downscaling operation; and wherein said second processing operation comprises an image windowing operation, an image scaling operation, or a combination thereof.

25. The method of claim 24, further comprising controlling at least one of said first or second processing operations in real time based at least in part on a command signal.

26. The method of claim 23, wherein said first processed image data comprises a downscaled full image and said second processed image data comprises a windowed image, a scaled image, or a combination thereof.

27. The method of claim 26, further comprising:

processing said digital image data in one or more additional processing operations to create one or more additional processed image data comprising a third image;

merging said one or more additional processed image data into said common merged data stream;

converting said merged data stream into said composite analog video stream containing said first, second and one or more additional images;

providing said composite analog video stream for communication across said analog interface;

receiving said composite analog video stream containing said first, second and one or more additional images from across said interface; and

displaying said first, second and one or more additional images contained in said composite analog video stream on a common analog display device;

wherein said second processing operation comprises an image windowing operation and an image upscaling operation;

wherein said second processed image data comprises an extracted and upscaled windowed image;

wherein said one or more additional processing operations comprises an image windowing operation and an image upscaling operation;

wherein said one or more additional processed image data comprises an extracted and upscaled windowed image; and

wherein at least one of:

said one or more additional processed image data has an image resolution that is different from an image resolution of said first and second processed image data, or

said one or more additional processed image data comprises a different portion of said digital image data than said first and second processed image data, or

a combination thereof.

28. The method of claim 26, wherein said step of displaying comprises displaying said downscaled first image on an analog display device while simultaneously displaying said windowed or scaled second image on said same analog display device, said first image being downscaled such that it does not occupy the full analog display space of said analog display device, and said second image being displayed in at least a portion of said full analog display space not occupied by said first image.

29. The method of claim 27, wherein said step of displaying comprises displaying said downscaled first image on an analog display device while simultaneously displaying said extracted and upscaled windowed second image and said extracted and upscaled windowed one or more additional images on said same analog display device, said first

image being downsampled such that it does not occupy the full analog display space of said analog display device, and said second image and said one or more additional images being displayed in at least a portion of said full analog display space not occupied by said first image.

30. The method of claim 26, further comprising:

processing said digital image data in one or more additional processing operations to create one or more additional processed image data comprising a third image;

providing said one or more additional processed image data in a second data stream;

converting said second data stream into a second composite analog video stream containing said one or more additional images;

providing said second composite analog video stream for communication across a second analog interface;

receiving said second composite analog video stream containing said one or more additional images from across said interface; and

displaying said one or more additional images contained in said second composite analog video stream on a second analog display device.

31. The method of claim 30, wherein said one or more additional processing operations comprises an image windowing operation and an image upscaling operation;

wherein said one or more additional processed image data comprises an extracted and upscaled windowed image.

32. The method of claim 31, further comprising controlling said one or more additional processing operations in real time based at least in part on a command signal.

33. Multiple resolution image creation circuitry configured to receive at least one digital image data input stream containing digital information, said multiple resolution image creation circuitry comprising:

multi-resolution image processing circuitry configured to:

create at least two digital image data streams from said at least one digital data input stream, each of said at least two digital image data streams comprising at least a portion of said digital image information,

merge said at least two digital image data streams into a common digital image data output stream; and

conversion circuitry coupled to said multi-resolution image processing circuitry and configured to:

receive said common digital image data output stream from said multi-resolution image processing circuitry,

convert said common digital image data output stream into an analog image output stream, and

provide said analog output image stream for transmission across an analog interface.

34. The multiple resolution image creation circuitry of claim 33, wherein one of said at least two digital image data streams comprises a first image having a first resolution; wherein another of said at least two digital image data streams comprises a second image having a second resolution; and wherein at least one of:

said first and second resolutions are different, or

said first image comprises a different portion of said digital image data input stream than said second image, or

a combination thereof.

35. The multiple resolution image creation circuitry claim 33, wherein said at least one digital image data input stream comprises a digital video signal received from a digital video source; and wherein said conversion circuitry is further configured to provide said analog output image stream as an analog video signal for transmission across said analog interface.

36. A multiple resolution image creation and display system comprising said multiple resolution image creation circuitry of claim 35; and further comprising an analog display device coupled to said analog interface and configured to receive said analog video signal from across said analog interface and to simultaneously display said first and second images of said analog video signal.

37. The multiple resolution image creation and display system of claim 36, wherein:

said multi-resolution image processing circuitry is further configured to:

create a third digital image data stream from said at least one digital data input stream, said third digital image data stream comprising at least a portion of said digital image information and having a third resolution; and

said conversion circuitry is further configured to:

receive said third digital image data stream from said multi-resolution image processing circuitry,

convert said third digital image data stream into a second analog image output stream, and

provide said second analog output image stream as a second analog video signal for transmission across a second analog interface; and

wherein said multiple resolution image creation and display system further comprises a second analog display device coupled to said second analog interface and configured to:

receive said second analog video signal from across said second analog interface, said second analog video signal comprising said third image, and

display said third image of said second analog video signal; and

wherein at least one of:

said third resolution is different from said first and second resolutions, or

said third image comprises a different portion of said digital image data, or

a combination thereof.

38. The multiple resolution image creation and display system of claim 37, wherein said multi-resolution image processing circuitry is further configured to:

extract a window area from said original image information and to scale said extracted window area to create said third image as a zoomed image; and

control a value of said scaling in real time based at least in part on a received command signal, or control the position of said extracted window area relative to said original image in real time based at least in part on a received command signal, or a combination thereof.

39. The multiple resolution image creation and display system of claim 36, wherein said first and second resolutions are different and wherein said analog display device is further configured to display said first image at said first resolution while simultaneously displaying said second image at said second resolution.

40. The multiple resolution image creation and display system of claim 36, wherein said multi-resolution image processing circuitry is further configured to use scaling to create said first image as a zoomed image prior to said merging; wherein said second image is not a zoomed image; and wherein said analog display device is further configured to display said zoomed first image while simultaneously displaying said second unzoomed image.



41. The multiple resolution image creation and display system of claim 36, wherein said multi-resolution image processing circuitry is further configured to control a value of said scaling in real time based at least in part on a received command signal.

42. The multiple resolution image creation and display system of claim 36, wherein said digital image information comprises an original image; wherein said multi-resolution image processing circuitry is further configured to create said first image by extracting a window area from said original image information to create said first image prior to said merging; and wherein said analog display device is further configured to display said first image while simultaneously displaying said second image.

43. The multiple resolution image creation and display system of claim 36, wherein said multi-resolution image processing circuitry is further configured to control a position of said extracted window area relative to said original image in real time based at least in part on a received command signal.

44. The multiple resolution image creation and display system of claim 36, wherein said digital image information comprises an original image;

wherein said multi-resolution image processing circuitry is further configured to create said first image by:

extracting a window area from said original image information and then upscaling said window area to create said first image as a zoomed image prior to said merging, and

downscaling said original image information to create said second image;  
and

wherein said analog display device is further configured to display said zoomed first image while simultaneously displaying said downscaled second image, said second image being downscaled such that it does not occupy the full analog display space of said analog display device, said first image being displayed on at least a portion of said analog display device that is not occupied by said second image.

45. The multiple resolution image creation and display system of claim 44, wherein said original image information comprises a high resolution digital image.

46. The multiple resolution image creation and display system of claim 44, wherein said multi-resolution image processing circuitry is further configured to:

control a position of said extracted window area relative to said original image in real time based at least in part on a received command signal;

control a value of said upscaling of said extracted window area in real time based at least in part on a command signal;

or a combination thereof.

47. The multiple resolution image creation and display system of claim 36, wherein said at least two digital image data streams comprise at least four digital image data streams;

wherein a first one of said at least four digital image data streams comprises a first image having a first resolution; wherein a second one of said at least two digital image data streams comprises a second image having a second resolution;

wherein a third one of said at least four digital image data streams comprises a third image having a third resolution; and wherein a fourth one of said at least four digital image data streams comprises a third image having a third resolution;

wherein each of said at least four images either has a resolution that is different from each of said other at least four images, or comprises a different portion of said digital image data input stream than each of said other of said at least four images, or a combination thereof;

wherein said analog video signal comprises said first, second, third and fourth images;

wherein said digital image information comprises an original high resolution image; and

wherein said multi-resolution image processing circuitry is further configured to:

create said first, second and third images by extracting respective first, second and third window areas from said original image and then upscaling said first, second and third window areas to create said first, second and third images as zoomed images prior to said merging,

downscale said original image information to create said fourth image; and

wherein said analog display device is further configured to display said zoomed first, second, and third zoomed images while simultaneously displaying said downsampled fourth image, said fourth image being downsampled such that it does not occupy the full analog display space of said analog display device, and said first, second and third images being displayed on at least

a portion of said analog display device that is not occupied by said fourth image.

48. The multiple resolution image creation and display system of claim 47, wherein said multi-resolution image processing circuitry is further configured to:

control the position of at least one of said first, second, or third extracted window areas relative to said original image in real time based at least in part on a command signal; or

control a value of said upscaling of at least one of said first, second or third extracted window areas in real time based at least in part on a command signal, or

a combination thereof.

49. A multiple resolution image creation and display system, comprising :

multi-resolution image processing circuitry configured to:

receive at least one digital image data input stream, said digital image data input stream containing digital image information,

create at least two digital image data streams from said at least one digital data input stream, each of said at least two digital image data streams comprising at least a portion of said digital image information, and wherein a first one of said at least two digital image data streams comprises a first image having a first resolution, and wherein a second one of said at least two digital image data streams comprises a second image having a second resolution;

conversion circuitry coupled to said multi-resolution image processing circuitry and configured to:

convert a first one of said at least two digital image data streams into a first analog image output stream, and convert a second one of said at least two digital image data streams into a second analog image output stream,

communicate said first analog output image stream across a first analog interface, and communicate said second analog output image stream across a second analog interface;

first display device coupled to said first analog interface and configured to receive said first analog output image stream comprising said first image from across said first analog interface, and to display said first image;

second display device coupled to said second analog interface and configured to receive said second analog output image stream comprising said second image from across said second analog interface, and to display said second image.

50. The multiple resolution image creation and display system of claim 49, wherein said first and second resolutions are different, or wherein said first image comprises a different portion of said digital image data input stream than said second image, or a combination thereof.

51. The multiple resolution image creation and display system of claim 49, wherein said at least one digital image data input stream comprises a digital video signal received from a digital video source; and wherein said conversion circuitry is further configured to

provide said first and second analog output image streams as first and second analog video signals for transmission across said respective first and second analog interfaces.

52. Multiple resolution image creation circuitry for processing digital image data comprising a full image, said multiple resolution image creation circuitry comprising:

multi-resolution image processing circuitry configured to:

process said digital image data in a first processing operation to create first processed image data comprising a first image,

process said digital image data in a second processing operation to create second processed image data comprising a second image,

merge said first and second processed image data into a common merged data stream; and

conversion circuitry configured to:

convert said merged data stream into a composite analog video stream containing said first and second images, and

provide said composite analog video stream for communication across an analog interface;

wherein at least one of:

said first processed image data has an image resolution that is different from an image resolution of said second processed image data, or

said first processed image data comprises a different portion of said digital image data than said second processed image data, or  
  
a combination thereof.

53. The multiple resolution image creation circuitry of claim 52, wherein said multi-resolution image processing circuitry is further configured to control at least one of said first or second processing operations in real time based at least in part on a command signal.

54. A multiple resolution image creation and display system comprising said multiple resolution image creation circuitry of claim 52, and further comprising:

an analog display device coupled to said analog interface and configured to:

receive said composite analog video stream containing said first and second images from across said interface; and

simultaneously display said first and second images contained in said composite analog video stream.

55. The multiple resolution image creation and display system of claim 54, wherein said first processing operation comprises a downscaling operation; and wherein said second processing operation comprises an image windowing operation, an image scaling operation, or a combination thereof.

56. The multiple resolution image creation and display system of claim 55, wherein said multi-resolution image processing circuitry is further configured to control at least one of said first or second processing operations in real time based at least in part on a received command signal.

57. The multiple resolution image creation and display system of claim 54, wherein said first processed image data comprises a downscaled full image and said second processed image data comprises a windowed image, a scaled image, or a combination thereof.

58. The multiple resolution image creation and display system of claim 57, wherein:

said multi-resolution image processing circuitry is further configured to:

process said digital image data in one or more additional processing operations to create one or more additional processed image data comprising a third image,

merge said one or more additional processed image data into said common merged data stream;

wherein said conversion circuitry is further configured to:

convert said merged data stream into said composite analog video stream containing said first, second and one or more additional images,

provide said composite analog video stream for communication across said analog interface;

wherein said analog display device is further configured to:



receive said composite analog video stream containing said first, second and one or more additional images from across said interface, and

simultaneously display said first, second and one or more additional images contained in said composite analog video stream;

wherein said second processing operation comprises an image windowing operation and an image upscaling operation;

wherein said second processed image data comprises an extracted and upscaled windowed image;

wherein said one or more additional processing operations comprise an image windowing operation and an image upscaling operation;

wherein said one or more additional processed image data comprises an extracted and upscaled windowed image; and

wherein at least one of:

said one or more additional processed image data has an image resolution that is different from an image resolution of said first and second processed image data, or

said one or more additional processed image data comprises a different portion of said digital image data than said first and second processed image data, or

a combination thereof.

59. The multiple resolution image creation and display system of claim 57, wherein said analog display device is further configured to display said downscaled first image while simultaneously displaying said windowed or scaled second image, said first image being downscaled such that it does not occupy the full analog display space of said analog display device, and said second image being displayed in at least a portion of said full analog display space not occupied by said first image.

60. The multiple resolution image creation and display system of claim 58, wherein said analog display device is further configured to display said downscaled first image while simultaneously displaying said extracted and upscaled windowed second image and said extracted and upscaled windowed one or more additional images, said first image being downscaled such that it does not occupy the full analog display space of said analog display device, and said second image and said one or more additional images being displayed in at least a portion of said full analog display space not occupied by said first image.

61. The multiple resolution image creation and display system of claim 57, wherein:

said multi-resolution image processing circuitry is further configured to:

process said digital image data in one or more additional processing operations to create one or more additional processed image data comprising a third image,

provide said one or more additional processed image data in a second data stream;

wherein said conversion circuitry is further configured to:

convert said second data stream into a second composite analog video stream containing said one or more additional images,

provide said second composite analog video stream for communication across a second analog interface; and

wherein said multiple resolution image creation and display system further comprises a second analog display device coupled to said second analog interface and configured to:

receive said second composite analog video stream containing said one or more additional images from across said second analog interface, and

display said one or more additional images contained in said second composite analog video stream.

62. The multiple resolution image creation and display system of claim 61, wherein said one or more additional processing operations comprise an image windowing operation and an image upscaling operation; wherein said one or more additional processed image data comprises an extracted and upscaled windowed image.

63. The multiple resolution image creation and display system of claim 62, wherein said multi-resolution image processing circuitry is further configured to control said one or more additional processing operations in real time based at least in part on a received command signal.

64. An image processing and display system comprising multiple resolution image creation circuitry coupled to at least one analog display device by at least one analog interface.

65. The image processing and display system of claim 64, wherein said multiple resolution image creation circuitry comprises multi-resolution image processing circuitry that comprises at least one window circuitry component, at least one image scaler circuitry component, and at least one frame buffer circuitry component.

66. The image processing and display system of claim 64, further comprising at least two analog devices, each of said at least two analog display devices being coupled to said multiple resolution image creation circuitry by a separate respective analog interface.

67. The image processing and display system of claim 65, further comprising a command circuitry coupled to said multi-resolution image processing circuitry configured to provide one or more command signals to control at least one of said at least one window circuitry component, at least one image scaler circuitry component, or a combination thereof.

68. The image processing and display system of claim 67, wherein said command signals comprise camera control commands.

69. A method of providing multiple images for transmission across a digital interface, comprising :

receiving at least one digital image data input stream, said digital image data input stream containing digital image information;

creating at least two digital image data streams from said at least one digital data input stream, each of said at least two digital image data streams comprising at least a portion of said digital image information;

merging said at least two digital image data streams into a common digital image data output stream;

providing said common digital image data output stream for transmission across said digital interface.

70. The method of claim 69, further comprising receiving said common digital image data output stream from across said digital interface, said common digital image data output stream comprising said first and second images; and storing said first and second images, displaying said first and second images on a display device, or a combination thereof.

71. Multiple resolution image creation circuitry configured to receive at least one digital image data input stream containing digital information, said multiple resolution image creation circuitry comprising multi-resolution image processing circuitry configured to:

create at least two digital image data streams from said at least one digital data input stream, each of said at least two digital image data streams comprising at least a portion of said digital image information,

merge said at least two digital image data streams into a common digital image data output stream; and

provide said common digital image data output stream for transmission across a digital interface.

72. A multiple resolution image creation and display system comprising said multiple resolution image creation circuitry of claim 71; and further comprising a digital processing device coupled to said digital interface and configured to receive said common digital image data output stream from across said digital interface and to store said common digital image data output stream, to display one or more images contained in said common digital image data output stream, or a combination thereof.